Remarks

Claims 1, 6, 7 and 31-40 are pending in the application. Claims 37-40 have been amended. No new matter has been added in the amended claims, as discussed further below.

The claim amendments and cancellations should not be construed to be an acquiescence to any of the claim rejections. Rather, they are being made solely to expedite the prosecution of the above-identified application. Applicants expressly reserve the right to further prosecute the same or similar claims in subsequent patent applications claiming the benefit of priority to the instant application. 35 U.S.C. § 120.

Claim Rejections Based on 35 U.S.C. § 103(a)

The Examiner has rejected claims 1, 6, 7, and 31-36 under 35 U.S.C. § 103 as being unpatentable over Li *et al.* (1994) in view of Daniel *et al.* (1992). The Examiner has rejected claims 1, 6, 7, and 31-36, stating that "it would have been *prima facie* obvious to one having ordinary skill in the art at the time the invention was made to prepare recombinant HIV-1 viruses with modified signal sequences, as taught by Li, et al. (1994), and to further include a *nef*-deletion in the construct, as provided by Daniel, et al. (1992), since this would provide a recombinant virus *that is replication-impaired* and expressed to high quantities" (emphasis added).

The recombinant HIV-1 virus that is the subject of and claimed in U.S. Patent Application No. 09/762,294 is avirulent, essentially non-cytolytic *and capable of highly efficient replication*. It can be also be expressed to high quantities. These properties are disclosed throughout the specification. Submitted concurrently herewith is a declaration under 37 C.F.R. § 1.132 signed by one of the co-inventors, Chil-Yong Kang, which contains additional data from measurements of the viral production, infectivity and cytopathic effect of the NL4-3^{WT}, NL4-3^{nef-}, NL4-3^{SSR} and NL4-$3^{SSR/nef-}$ viruses produced as described in Examples 5 and 6 of the specification of U.S. Patent Application No. 09/762,294. This data shows that the signal sequence replaced (NL4-3^{SSR}) *and* combination *nef*-deleted/signal sequence replaced (NL4-$3^{SSR/nef-}$) viruses are able to be produced in high quantities, exhibit substantially reduced infectivity, and exhibit very little sign of cytopathic effect *despite active HIV replication*.

As outlined in Dr. Kang's declaration in more detail, the Li reference (of which Dr. Kang is a co-author) does not teach the preparation of recombinant HIV-1, only the expression of modified gp120 genes in insect cells using a recombinant baculovirus expression system. The Daniel reference discloses a live attenuated SIV vaccine comprising a *nef*-deleted SIV that replicates poorly. A reference published concurrently with the Daniel reference, attached as Exhibit B to Dr. Kang's declaration, cautions that SIV is different from HIV. The Examiner himself points out in the Office Action that "the prior art teaches that HIV-1 vaccine development is extremely unpredictable" (pg. 5 of Office Action). Thus, assuming one of skill in the art would even be motivated to apply the teachings of Daniel to HIV, combining the teaching of Daniel with that of Li *would not* produce a recombinant HIV-1 virus that is avirulent, essentially non-cytolytic and *capable of highly efficient replication.* Indeed, in light of the Daniel reference, one of skill of the art would not even expect to produce an HIV-1 that is capable of highly efficient replication. Rather, one would expect to produce an HIV-1 that is *incapable* of replication, as the Examiner himself admits in the Office Action.

Accordingly, a *prima facie* showing of obviousness has not been established. Applicants respectfully request the withdrawal of the claim rejection under 35 U.S.C. § 103(a).

Claim Rejections Based on 35 U.S.C. § 112¶1

Claims 37-40 stand rejected under 35 U.S.C. § 112¶1 for lack of enablement.

Applicants have amended claims 37-40 to recite "immunogenic composition" rather than "vaccine." Support for the term "immunogenic composition" lies in the fact that "immunogenicity" is recognized by those of skill as the art as being an inherent property of a "vaccine." The specification alludes to as much on page 8, line 39, wherein it is stated that adjuvants can "enhance the immunogenicity of the vaccine." The subject matter of the claim need not be described literally (i.e., using the same terms or *in haec verba*) in order for the disclosure to satisfy the description requirement. See M.P.E.P. § 2163.02. Although not all "immunogenic compositions" confer a protective response in a subject as do vaccines, an "immunogenic composition" may be used, for example, for development of HIV/AIDS vaccines for the prevention and treatment of HIV infections, as disclosed in the specification at page 6, lines 32-36.

Applicants respectfully request reconsideration and withdrawal of the rejection of claims 37-40 under 35 U.S.C. § 112¶1.

Conclusion

In view of the above amendments and remarks, the Applicants believe that the pending claims are in condition for allowance. If a telephone conversation with Applicant's Attorney would expedite prosecution of the application, the Examiner is urged to contact the undersigned.

Respectfully submitted,
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